

i) an input for user requests  
 ii) a plurality of software entities, each having data processing capability, a datastore or access to a data store, and communications capability for communicating with others of said plurality of software entities for use in initiating provision of a service over said network to a user, and at least one of said software entities having a control output for signals for said initiation wherein the system has means responsive to a user request to enable one of said software entities for response to inputs, the enabled software entity having a default set of capabilities, the default set including a reconfiguration capability in response to further inputs to the enabled software entity.

A system as above, wherein the capabilities of the enabled software entity are determined at least in part by data structures loaded in the software entity.

A system as above, wherein the enabled software entity has access to a datastore for storing said data structures, and the reconfiguration capability comprises modification of the set of data structures loaded in the software entity.

A system as above, wherein the software entities are installed on communications nodes, either on the same or different nodes, which nodes are provided with a distributed computing environment for communication between the software entities.

A system as above, wherein communications between software entities installed on different nodes are carried by the communications network for providing services to a user, according to a distributed processing environment protocol stack established by said environment at each node.

A system as above, wherein the enabled software entity initiates provision of a service by making transitions between different sets of capabilities, and wherein transitions between one or more selected pairs of these sets are barred.

A method of providing one or more communications services to a user by means of a communications network, which method comprises the steps of

- i) enabling a software entity, in a community of software entities which together are capable of initiating service provision to the user, to respond to a first user input,
- ii) in response to a further user input, reconfiguring the enabled software entity so as to change its capabilities, said reconfiguration being carried out by modifying a set of data structures loaded in the software entity.

A method as above which further comprises storing a set of data structures, selectively accessible by the enabled software entity so as to provide said reconfiguration.

What is claimed is:

1. A service provision system, for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code, wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services; and wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set,

each software module comprising at least one process step with one or more associated rules, the behavior of the system in use being determined at least in part by the outcome of application of said one or more associated rules in the process step, and

at least one of said one or more associated rules being external to the software modules and being loaded in a relevant module when that module is run during use of the system.

2. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set; and

wherein the reconfigurable agent adopts a first configuration in response to a user initiating use of the system, by selecting an initial set of software modules, and reconfigures to a second configuration on receiving data associated with the user, by selecting a subsequent set of software modules.

3. A service provision system according to claim 1 wherein the reconfigurable software agent is provided with an available set of software modules and adopts a reconfiguration at least partly by selecting modules from the set to make available to run in use of the system and which further comprises means for changing the available set of software modules for the purpose of upgrading or modifying the service provision system.

4. A service provision system according to claim 1 wherein at least one associated rule is reusable between software modules in that it can be loaded with respect to more than one software module when the respective modules are run during use of the system.

5. A service provision system according to claim 1 wherein: a group of the software modules provide service-independent building blocks in support of services to be provided by the system.

6. A service provision system according to claim 1 wherein:

at least one of the software modules provides adaptation of the service provision system to operating constraints and/or capabilities relevant to usage of the system by a user.

7. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

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wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set; and

wherein the reconfigurable software agent comprises, or has access to, a plurality of software modules, each software module being provided with a data structure and associated functionality, at least some of the different configurations of the agent incorporating different respective sets of modules selected from said plurality, at least one of the software modules providing adaptation of the service provision system to operating constraints and/or capabilities relevant to usage of the system by a user; and

wherein said adaptation of the service provision system is in response to real-time operating constraints and/or capabilities relevant to usage of the system by a user.

8. A service provision system according to claim 7 wherein said adaptation is in respect of language.

9. A service provision system according to claim 6 wherein said adaptation is in respect of a filter or translator of information provided by the system to the user.

10. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code, wherein at least one agent is a reconfigurable agent having an input for user information and comprises, or has access to, a plurality of different software modules which provide executable code to the agent for user in providing access to services, at least two configurations of the agent incorporating different respective sets of modules selected from said plurality,

wherein at least one of the software modules provides selection and/or modification of other software modules of said plurality between different configurations of the agent.

11. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set; and

wherein the reconfigurable software agent comprises, or has access to, a plurality of software modules, each software module being provided with a data structure and associated functionality, at least some of the different configurations of the agent incorporating different respective sets of modules selected from said plurality, at least one of the software modules providing selection and/or modification of other software mod-

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ules of said plurality between different configurations of the agent; and

wherein at least one of said plurality of software modules provides a conflict resolution process for use in resolving conflicts between requirements of software modules of the same selected set.

12. A service provision system according to claim 10, wherein

each software module comprises at least one process step with one or more associated rules, the behaviour of the system in use being determined at least in part by the outcome of application of said one or more associated rules in the process step; and

said modification of the software modules between configurations is provided at least in part by modification or substitution of one or more associated rules of a process step.

13. A service provision system according to claim 10 wherein

each software module comprises at least one process step with one or more associated rules, the behaviour of the system in use being determined at least in part by the outcome of application of said one or more associated rules in the process step; and

said modification of the software modules between configurations is provided at least in part by addition or subtraction of one or more rules to or from the associated rules of a process step.

14. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set; and

wherein the reconfigurable software agent comprises, or has access to, a plurality of software modules, each software module being provided with a data structure and associated functionality, at least some of the different configurations of the agent incorporating different respective sets of modules selected from said plurality, at least one software module of the plurality providing conflict resolution functionality for use in co-ordinating presence of other software modules in a selected set.

15. A service provision system according to claim 1 wherein data input to the system in use, by a user, comprises calling entity identification data, identifying a calling entity accessing the system, and the configuration adopted by the reconfigurable software agent is determined at least in part by reference to the calling entity identification data.

16. A service provision system for providing services to a user by means of one or more communications network(s), wherein the service provision system comprises intelligent software agents in a computing environment,

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which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

at least some of the different configurations of the agent incorporating different respective sets of modules selected from said plurality,

wherein data input to the system in use, by a user, excludes calling entity identification data, identifying a calling entity accessing the system, and the configuration adopted by the reconfigurable software agent determines that the functionality of the system includes means for providing cost data to the calling entity in advance of service provision by means of the system.

17. A service provision system for providing services to a user by means of one or more communications network(s),

wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

at least some of the different configurations of the agent incorporating different respective sets of modules selected from said plurality,

wherein the configuration adopted by the reconfigurable software agent determines that the functionality of the system includes means for accepting payment data from the calling entity in advance of service provision by means of the system.

18. A service provision system according to claim 1 wherein the system comprises at least two reconfigurable intelligent software agents, each reconfigurable agent being associated with a respective user of the system.

19. A service provision system according to claim 1 wherein the intelligent software agents are constructed according to object-oriented technology.

20. A service provision system according to claim 1 wherein services made available by use of the system are information services.

21. A service provision system for providing services to a user by means of one or more communications network(s),

wherein the service provision system comprises intelligent software agents in a computing environment, which agents co-operate to provide access to services for a system user by invoking and running executable code,

wherein at least one agent is a reconfigurable agent and comprises an input for user information, and further comprises or has access to a plurality of different software modules which provide executable code to the agent for use in providing access to services;

wherein said reconfigurable agent is provided with means to select a set of software modules from said plurality of different software modules, in response to user information received at the input, and to invoke and run the executable code provided by said selected set; and

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wherein the reconfigurable agent has a plurality of different configurations available to it, and can reconfigure to make transitions between configurations of said plurality, during use of the system, direct transitions between predetermined pairs of the configurations being unavailable.

22. A service provision system according to claim 1 wherein the reconfigurable agent can adopt either one of a first and a second configuration, the first configuration providing a low level of functionality only and the second configuration providing a higher level of functionality, the second configuration only being selected and loaded for use after a user complies with an authentication step of the first configuration.

23. A service provision system according to claim 22 wherein, in the first configuration, the functionality comprises authentication and assistance only.

24. A service provision system for making information services available by means of one or more communications network(s), and for managing the provision of such services,

the service provision system comprising receiving means for receiving a user request for access to functionality provided by the system, data processing means for processing data associated with a user input, and means for making service provision or management functionality available to the user in response to the user request, in accordance with data processed by the processing means,

wherein the functionality made available to a user is determined at least in part by data processed by the processing means,

the service provision system comprising intelligent software agents in a computing environment, which agents cooperate to support a response to a user request by the system, at least one of the agents being reconfigurable to modify said functionality made available in response to data processed by the processing means,

wherein each reconfigurable agent has available to it a plurality of software modules, and

wherein the system comprises means to reconfigure each reconfigurable agent by selecting and loading a different set of said plurality of software modules so as to rebuild said agent in a new configuration.

25. A service provision system according to claim 24 wherein at least some of said software modules comprise service independent building blocks.

26. A service provision system according to claim 25 wherein at least one of the agents is provided with data and functionality relevant to service access control.

27. A service provision system according to claim 26 wherein the service access control agent is reconfigurable in response to data associated with a user input to modify access control functionality of the system.

28. A service provision system according to claim 26 wherein the service access control agent is reconfigurable so as to change service management functionality available to the user.

29. Service access apparatus for providing access to communications services to a user in a service provision system according to claim 1, the apparatus itself comprising a said self reconfigurable software agent.

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